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EDITORIAL

THE LITERARY TRADITION IN ENGLISH MEDICINE

(WITH SIDELIGHTS ON MEDICINE IN ENGLISH LITERATURE)

Over the mantel in Sir William Osler's library at No. 1 West Franklin Street (Baltimore) there stood a panel of portraits of Linacre, Harvey and Sydenham, the three founders of English medicine, bearing the legend *Litterae: Scientia: Praxis*. This device, an invention of Sir Henry Acland's, sums up the history of English medicine before the time of John Hunter and Jenner, when physicians ceased to lecture or write in Latin and began to express themselves in the vernacular. English medicine differs from French and German medicine in that it starts at the bedside, where French medicine circles around the hospital and German medicine around the university clinic and the laboratory, as a scientific discipline in the academic curriculum. Implicit in the very core and fibre of English medicine is a great literary tradition, not that the medical literature of Great Britain has any special place in the history of English literature, but in the sense of the observation of Helmholtz that the object of English university teaching seemed to be to produce gentlemen, who excelled in athletic sports and wrote their language well. Linacre, whom Fuller called "the restorer of learning in England," was the essential founder of this tradition. Harvey, through his demonstration of the circulation of the blood,

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altered the whole fabric of existing medicine and headed a long line of isolated investigators, who made the functions and disorders of the circulation almost an English theme; and Sydenham was the first of the great line of English bedside practitioners, culminating in Osler himself. These three generic types of medical men, the literary physician, who writes, the laboratory physician, who investigates, and the bedside doctor, whose whole duty is to get sick people well, are essentially different in capacity and temperament, although one type may sometimes lap over into another. Linacre, the first exemplar of the man of letters in English medicine, was primarily a grammarian, who studied medicine in Italy, where he met Politian, Hermolaus Barbarus, Aldus, Leonicens and other Renaissance scholars. This gave him his incentive to study and to translate certain Greek medical texts which had come to the front with the Revival of Learning. Graduating at Padua, Linacre took another medical degree at Oxford; taught Greek to no less than Erasmus and Sir Thomas Moore; was the private tutor of Prince Arthur and the Princess Mary; became one of the King's physicians at £50 a year; practised in London, numbering Cardinal Woolsey among his patients; founded the Royal College of Physicians (1518), of which he was the first president; and through his endowment of a number of lecture foundations at Oxford and Cambridge, was the originator and organizer of medical teaching at these Universities. Linacre was thus, in a very real sense, the founder and prime mover of English medicine. His literary productions include two Latin grammars, written in English for the use of the Princess Mary; a book on Latin syntax; and Latin translations of Galen's treatises on personal hygiene (1517), therapeutics (1519), temperaments (1521), natural faculties (1523), the pulse (1523) and the differentiation of symptoms of disease or semeiology (1524). The Latin grammars were less popular in England than on the continent, where they were translated and passed through many editions. The versions of Galen not only clarified the textual meaning of the great Greek physician, but placed Linacre in the front rank of the med-

ical humanists of the Renaissance, who, in the words of Osler, "restored to the profession the Greek ideals and again made observation and experiment the Alpha and Omega of the science." The influence of Linacre upon the manner and mode of literary expression in English medicine was decisive, but very much as the fine diction of *Paradise Lost* bears the impress of Milton's experiments in Latin and Italian verse or as Swinburne acquired his remarkable command of English through a similar proficiency in other tongues. Up to the middle of the 18th century, the learned of the profession continued to write and lecture in Latin. But in the considerable line of classical British medical texts between Harvey and Cullen there is enough elegant Latinity to justify the eoonium of Erasmus: "What can be more acute, more profound, more refined than the judgment of Linacre?" With Linacre indeed, English medicine became a going concern. He died of stone in the bladder on October 20, 1524 at the age of 64, having just completed his book on Latin syntax, which was published two months after his death. Erasmus refers to him, in his *Eulogy of Folly*, as one who spent the last years of his life in drudging to conquer the details of grammar and "made it the chief part of his prayers that his life might be so long spared till he had learned rightly to distinguish between the eight parts of speech, which no grammarian, whether Greek or Latin, had yet accurately done." Upon this hint, two English medical scholars, Payne and Osler, assume that Linacre was the original of Browning's poem, "The Grammarian's Funeral."

Linacre and Browning! These names suggest another phase of our subject upon which one may touch but lightly, namely the remarkable way in which the medical thought of different periods has interwoven itself into the fabric of English literature and the number of English physicians or medical graduates who have become poets and men of letters.

Before Linacre's time, there are but few medical allusions in the English literature of the Saxon and Anglo-

Norman periods. The Anglo-Saxon epics, such as Beowulf or the Fight at Finnsbury, and the legends of the Arthuri-an Cycle, abound, like the Homeric poems, in one particular only: war-wounds. At the same time, the innumerable English medical and scientific manuscripts of the Middle Ages are mainly things of shreds and patches and overlaid material, derived from late Roman and Byzantine medical tradition. During the long subsidence of Anglo-Saxon literature from the Norman conquest to Chaucer, English physicians, such as Ricardus Englicus (Richard of Wendover), Gilbertus Anglicus or John of Gaddesden wrote medical treatises not particularly remarkable for either matter or manner. Roger Bacon founded the study of science in England and at least one Anglo-Saxon surgeon, John of Arderne, made a mark above the average by his account of an original operation for fistula in ano, written in the idiomatic, almost Anglo-Saxon, speech of the period. In Chaucer, the physician or Doctor of Physic appears for the first time as an individualized character², of whom we learn that "he was grounden in astronomye," "a verrey parfait practisour," who knew all the medical writings of his day, but "whose studie was but littel on the Bible." The last line, "Therefore he lovede gold in special," suggests the proverbial avarice of the mediæval physician.

The Fifteenth Century, so sterile in literary productivity that its one great book, *The Morte d'Arthur* of Sir Thomas Mallory, has been likened to an oasis in the desert, was yet remarkable for a number of popular, semi-medical MS. treatises in the vernacular, such as the *Dietary of Andrew Boorde*, the *Babees Book*, the English version of Lanfranc, all published by the Old English Text Society, and for the appearance of English medical incunabula, the earliest of which was the *Governayle of Helthe*, printed by William Caxton in 1491. These vernacular productions have the choppy, staccato manner of Bishop Latimer's sermons and suchlike English prose. In the 16th century,

²So, too, the apothecary appears as a leading figure in John Heywood's dramatic satire on quackery, *The Four P's* (1545-7).

Linacre, as we have seen, sets English medicine in motion, and through his grammatical writings and translation³, establishes a norm of clear and precise modes of expression in writing on medicine, both in Latin and English. Linacre ushers in the crowded Renaissance, the period of the foundation of modern anatomy by Leonardo and Vesalius, of the great medical printers, humanists, lexicographers and botanists, of Paracelsus and Paré and Fracastorius. Yet curiously enough, the outstanding English medical books of the 16th century are in the vernacular, and never has the medical thought of any period been so extensively reflected anywhere in secular literature as in Shakespeare and his fellow dramatists of the Elizabethan age. The treatise on sweating sickness by Dr. Caius, of the *Merry Wives of Windsor*, exists not only in Latin, but also in an old English version, which, like the first English book on anatomy, that of Thomas Vicary (1548), is in the tense nervous Saxon of Bishop Latimer's sermons. The names for the parts of the body are as droll as those employed by Walt Whitman in *Children of Adam*. Profane references to parts of God's body, such as 's blood, or 's nails, also came into vogue in this period, among soldiers and sailors. The first English book on obstetrics, the *Byrthe of Man-kynde* by William Raynalde (1545) was also vernacular, a translation of the *Rosegarten* of Eucharius Röslin (1513). In this group belong the *Judycyal of Urines*, printed by Wynkyn de Worde (1516); the *Grete Herball* of Peter Treverus (1516); Thomas Phayre's *Regiment of Life* (1545), a version of the Salernitan *Regimen Sanitatis*, which contains his *Boke of Children* (the first English treatise on pediatrics); Thomas Gale on gunshot wounds (1563); Walter Bailey's little book on diseases of the eye (1586); the surgical treatises of William Clowes (159) and Peter Lowe (1597); the first booklet on tropical diseases, ascribed to George Wateson (1598); and many stately folios, conveying Tudor translations of Ambroise Paré, Brunschwig, Arceo, Oviedo, Monardes, Acosta, and other European contributors to medicine and surgery. The literary manner of these writings is the high pitched, ex-

pansive, confident, self-assertive, somewhat garrulous manner of Paracelsus, Brantôme and other prose writers of the Renaissance. Perhaps the most vigorous exponent of this literary swashbuckling is the military surgeon, William Clowes, whose treatise on gunshot wounds abounds in lively pen-pictures of his time, and who reveals himself as a master of billingsgate in berating the interlopers and incompetents of his craft. The prose of the Elizabethan physicians is of the type described by Matthew Arnold as Corinthian, the prose of one "whose reason has not cleared itself," too profuse and redundant, too lacking in syntax, too much overloaded with ornate epithets, saving clauses and superfluous rumble-bumble to attain to the balance and sense of proportion associated with the quality of literary style. One production of the period, midway between medicine and literature proper, is highly characteristic. *The Metamorphosis of Ajax* (1596) of Sir John Harington, coming, as it does, at the end of the 16th century, has the pleasant, chatty, communicative manner of the prose interludes of the Jacobean plays. Harington's versified paraphrase of the Salernitan *Regimen* (1607) recently edited by Dr. Francis R. Packard (1920), is, like Harington's own epigrams, witty and piquant. But even the prose of the major productions of Lord Bacon is sometimes bewildering and consequently stupefying in its twisted syntax, far inferior, indeed, to his *Essays* in literary merit and medical interest. Bacon, as Singer pointed out, is the solitary instance of an attempted fusion between the law and science, and, as might have been expected, it proved to be a sad case of trying to "solder incompatibles and make them kiss." In relation to his fundamental aspiration, the advancement of science, Bacon is, in his own words, more memorable in that "he rang the bell which called his wits together," than for anything he wrote or accomplished. Some of his ideas on medicine, such as, the prospective development of comparative anatomy and pathology, the advantages of physical exercise over régime, the value of psychotherapy in mental disorders, the notion of administering remedies in a certain order, are good.

His experiments, theories and prescriptions are, almost without exception, bad. Two of his essays are medical in content, viz., "Of Regiment of Health" and "Of Deformity." Some sentences from the latter anticipate the Inferiority Complex of Adler:

"Whoever hath anything fixed in his person that doth induce contempt hath also a perpetual spur in himself to rescue and deliver himself from scorn. Therefore all deformed persons are extreme bold, first, in their own defence, as being exposed to scorn, but in process of time by a general habit . . . so that upon the matter, in a great wit, deformity is an advantage to rising."

Inferior as is the quality of Elizabethan prose, scientific or secular, the blank verse of the great dramatists of the period turns out to be, on the other hand, a highly effective medium for the expression of scientific ideas and current medical doctrine. Open the Elizabethan and Jacobean dramatists anywhere and you will find them saturated with the medical thought of the time, not merely the superstitious medical lore and therapeutic practices which Dr. Robert Fletcher analyzed so effectively in his well-known paper of 1895, but sound, sensible medical thinking which is sometimes startlingly modern. Thus, the use of opiates and other "drowsy syrups" in surgery, which went on up to the introduction of ether and chloroform anæsthesia (1847), is clearly indicated by Massinger—

"We have given her, sir,
A sleepy potion, that will hold her long
That she may be less sensible to the torment
The searching of her wound will put her to."

The Duke of Milan, V, 12.

and Middleton—

"I'll imitate the pities of old surgeons
To this lost limb, who, ere they show their art,
Cast one asleep, then cut the diseased part."

Women beware Women, IV, 1.

Again, the doctrine of contagion, that infectious diseases are communicable, while but vaguely surmised by Lucretius, Virgil, Livy and a few other superior minds among the ancients, is clearly expressed in Shakespeare:

"Men take diseases of one another."

II Henry IV, 5.

"Tis time to give them physic: Their diseases are grown so catching."

Henry VIII, I, 2.

As also the theory of mother-wit, that a man's mental capacity derives from his mother—

"That such a crafty devil as his mother,
Should yield the world this ass."³

Cymbeline, II, 1.

Or that all work and no play makes the body to grow stale with the toxins of fatigue:

"Why universal plodding poisons up
The nimble spirit in the arteries."

Love's Labors Lost, IV, 3.

The Hippocratic aphorism about simultaneous pains in different parts of the body (II, 42) is expressed by Shakespeare with the utmost simplicity:

"One pain is lessened by another's anguish."

Romeo and Juliet, I, 2,

and again—

"But where the greater malady is fixed,
The less is scarcely felt."

King Lear, III, 4.

All along the line, Elizabethan blank verse is seen to be far superior to the medical prose of the period in the terse statement of scientific thought, and in no other period have the literature of England and France been so profoundly influenced by the terminology and ideation of science as in the 16th century. In this regard, the Elizabethan drama is comparable with the *Divina Commedia* of Dante, in which all the scientific ideas and notions of the Middle Ages are embalmed, like flies in amber. Would it be possible, for instance, to state more clearly than Shakespeare, the modern doctrine of behaviorism, that through the sym-

³This theory of the inheritance of mentality, favored by Schopenhauer and supported by the sportman's proverb, *Chien de chienne et chienne de chien*, is further illustrated in Middleton's *A Fair Quarrel*, I, 1.

"Wise men beget fools, and fools are the fathers
To many wise children; *hysteron proteron*,
A great scholar may beget an idiot,
And from the plough-tail may come a great scholar."

pathetic nervous system, the body also thinks, that we move by means of striped or voluntary muscle, but are moved by smooth or involuntary muscle:

"There's language in her eye, her cheek, her lip,
Nay her foot speaks, her wanton spirits look out
At every joint and motive of her body."

Troilus and Cressida, IV, 5,

or, in the lines of another poet of the period—

"Her pure and eloquent blood
Spoke in her cheeks and so distinctly wrought
That one might almost say her body thought."

John Donne: *Elegy on Mistress Drury*.

Or take the old doctrine of cruentation, that the wounds of the murdered will bleed spontaneously on the presence of the murderer, as conveyed in *Richard III* (I,2) :

"Dead Henry's wounds
Open their congealed mouths and bleed afresh.
Blush! Blush! thou lump of foul deformity
For tis thy presence that exhales this blood
From cold and empty veins where no blood dwells."

Or the old Alexandrian theory that the blood vessels arise from the liver, in Marlowe's *Tamburlaine* (II, III, 4) :

"I feel my liver pierced and all my veins,
That there begin and nourish every part,
Mangled and torn."

The ancient notion of Aristotle that the heart thinks, is the seat of reason and intelligence, persisted long after Harvey's time and is even now current in such phrases as "hard hearted" (for tough-minded); "Get it by heart" (for memorize it), or "at heart" (for inmost mind). St. Matthew's "out of the heart the mouth speaketh" is paralleled by Hamlet's "Would heart of man once think it?" or Coriolanus ("His heart's his mouth.")

Nearly every book on history of medicine begins with the intelligence displayed by the dog in licking its wounds, splintering an injured limb by hopping about on three legs or seeking out grasses for emetic purposes. And with what droll humor is all this conveyed in the dry Saxon English of a play of 1593 by Thomas Nash—

"That dogs physicians are, thus I infer,
 They are ne'er sick but they know their disease,
 And find out means to ease them of their grief;
 Special good surgeons to cure dangerous wounds,
 For stricken with a stake into the flesh
 This policy they use to get it out:
 They trail one of their feet upon the ground,
 And gnaw the flesh about where the wound is,
 Till it be clean drawn out; and then, because
 Ulcers and sores kept foul are hardly cured,
 They lick and purify (them) with their tongue,
 And well observe Hippocrates' old rule,
 The only medicine for the foot is rest;
 For if they have the least hurt in their feet,
 They bear them up and look they be not stirr'd.
 When humours rise they eat a soverign herb,
 Whereby what clogs their stomach they cast up;
 And as some writers of experience tell,
 They were the first invented vomiting."⁴

Elizabethan blank verse, in brief, justifies the dictum of Alfred Noyes that "there is no precision of expression like the precision of great poetry." In the 17th century, which Osler regarded as the most interesting period of English history and literature, British medicine comes into its own. The half century of Elizabeth's reign ended in 1603. In 1616, the year of Shakespeare's death, Harvey completed his demonstration of the circulation of the blood, which he published 12 years later in 1628. This was four years before the birth of Sydenham whose place among the English clinicians is as that of Marlborough, Wellington and Nelson in the military and naval pantheon of Britain. Sydenham's original descriptions of dysentery (1669-76), scarlatina (1675), hysteria (1682), gout (1683), chorea minor (1686, bronchopneumonia and pleuropneumonia, diseases he put on the map, came toward the end of the century. As Harvey and Sydenham wrote in Latin exclusively, we can judge of their position in English medical literature by translations only. Even so, there is an end of the turgid, redundant, expansive quality of Elizabethan medical prose, which trails off in the quaint imagery, or-

⁴Cited by Fletcher; *Johns Hopkins Hosp. Bull.*, Balt., 1895, VI, 83.

nate locution yet wholly understandable diction of Sir Thomas Browne. In the century which began with Gilbert's book on the magnet and the production of Hamlet, English prose had acquired something of the Puritan sobriety, economy and austerity, in other words, was already by way of being an effective vehicle for the expression of scientific thought. The sentences of Harvey and Sydenham are simple in construction, straight-shooting, in the sense of going directly to the point without circumlocution, hence unmistakable in meaning and understandable on the instant. Three centuries before the advent of laboratory telegrams from the heart by the string galvanometer, Harvey describes that dissociation of the rhythms of auricle and ventricle known as heart-block, and does it in a single sentence, adumbrating the two, and three-time gallops of the recent clinicians:

"While the heart gradually dies, it sometimes responds with a single weak and feeble beat or two or three pulsations of the auricles."

Three centuries again, before the modern laboratory experimenters, Harvey revives a quiescent heart by wetting it with saliva on his finger:

"Once in an experiment in a pigeon, after the heart had stopped and even the auricles had stood still for some time, I rested my finger warm and wet with saliva upon it. By this warm application, it recovered life and strength. The auricles and ventricles beat, alternately contracting and relaxing, as if called back from death."

But to sense the alert intelligence and zest of life in the man called Harvey, let us peruse his account of the Bass Rock, off the coast of Scotland, an interlude in his treatise on embryology (1651), which reads like a page out of Defoe or Stevenson's *Catriona*:

"There is a small island which the Scots call the Bass Island (and speaking of this one will suffice for all) situated in the open ocean, not far from the shore, of the most abrupt and precipitous character, so that it rather resembles one huge rock or stone than an island, and indeed it is not more than a mile in circumference. The surface of this island in the months of May and June, is almost completely covered with nests, eggs, and young birds, so that you can scarce find free footing anywhere; and then such is the density of the flight of the old birds above, that like a cloud they darken the sun and the sky; and such the screaming and din that you can scarce hear the voice of one who addresses you. If you turn your eyes below, and

from your lofty stance and precipice regard the sea, there you perceive on all sides around an infinite variety of different kinds of sea-fowl swimming about in pursuit of their prey: the face of the ocean is very like that of a pool in the spring season, when it appears swarming with frogs; or to those sunny hills and cliffy mountains looked at from below, that are covered with numerous flocks of sheep and goats. If you sail round the island and look up, you see on every ledge and shelf, and recess, innumerable flocks of birds of almost every size and order; more numerous than the stars that appear in the unclouded moonless sky; and if you regard the flights that incessantly come and go you may imagine that it is a mighty swarm of bees you have before you. The whole island appears of a brilliant white colour to those who approach it,—all the cliffs look as if they consisted of the whitest chalk; the true colour of the rock, however, is dusky and black. It is a friable white crust that is spread over all, which gives the island its whiteness and splendour, a crust having the same consistency, colour, and nature as an egg-shell, which plasters everything with a hard, though friable and testaceous kind of covering. The lower part of the rock, laved by the ebbing and flowing tide, preserves its native colour, and clearly shows that the whiteness of the superior parts is due to the liquid excrements, white, hard and brittle like the shell of the egg, cover the rock, and, under the influence of the cold of the air, encrust it. Now this is precisely the way in which Aristotle and Pliny will have it that the shell of the egg is formed."

The literary manner of Sydenham is graver, more serious and sober-sided, yet equally plain, simple and understandable:

"A man is as old as his arteries."

"The selfsame phenomena that you would observe in the sickness of a Socrates, you would observe in the sickness of a simpleton."

"Fever itself is Nature's instrument."

"Merely to enumerate all the symptoms of hysteria would take a long day, so many are they. Yet not more numerous than varied, proteiform and chameleonlike."

"Gout, unlike any other disease, kills more rich men than poor, more wise men than simple. Great kings, emperors, generals, admirals and philosophers have all died of gout."

It is not without reason that Aristotle has observed that melancholy men are men of highest genius.

"As indeed, no man can say who it was that first invented the use of clothes and houses against the inclemency of the weather, so also can no investigator point out the origin of medicine, mysterious as the source of the Nile. There has never been a time when it was not."

Even in these plain, sober-sided sentences, you will perceive what Dryden had in mind when he wrote of "the other harmony of prose."

The same simple, plain, direct, understandable mode of expression is discernible, not only in the medical allusions in the King James Bible of 1611; but particularly in the verse of the dramatists and poets of the Jacobean period. What once took a page or paragraph is now said in a single line or sentence, e. g., the utterance of Satan in *Paradise Lost*, perhaps the wittiest single line in blank verse:

"Not to know me argues yourself unknown."

Thus, George Herbert conveys the idea of focal infection by the mouth—

"Look to thy mouth: diseases enter there."

In a single line, Dryden contrasts the Harveian doctrine of the circulation with the old Galenic notion of a tidal, shuttlewise ebb and flow—

"The circling streams once thought but pools of blood,"

and abounds in terse psychological observations of peculiar interest to physicians, such as the fiery soul fretting the pygmy body to decay, or "Great wits are sure to madness near allied," or "Stiff in opinions, always in the wrong," or "Beware the fury of a patient man," or "For every inch that is not fool is rogue," or the big-boy complex ("Men are but children of a larger growth"), or the tendency of the lover to credit his beloved with supernal perfections not always discernible to rank outsiders—what Mencken calls "editing his girl—"

"The cause of love can never be assigned:

'Tis in no face, but in the lover's mind."

Milton thus summarizes the archaic pathology of his own blindness (*gutta serena*):

"So thick a drop serene hath quenched their orbs,"

and describes the Archangel as purging the visual nerve of Adam with euphrasy and rue, "for he had much to see."⁵

⁵Milton's blindness is reflected in his many references to effects of light, notably "darkness visible," "the palpable obscure," "dim religious light," "dark with excessive bright," "streaming light" and "the gay motes that

Butler, in *Hudibras*, says, "No man of himself doth catch," in other words, is not infected by infections already within him; but the supposed reference to the beneficial or antagonistic effect of one disease upon another in *Romeo and Juliet* (1591-2)—

"Take then some new infection to thine eye,
And the rank poison of the old will die," I, 2,

is merely a fanciful conceit of Benvolio, to the tune of "Off with the old love, on with the new."

It is known that the Black Death and the Hundred Years' War set back civilization and sterilized intellectual productivity in Europe for over a century. How well this devastation is conveyed in three stately lines of the dramatist Shirley—

"Devouring Famine, Plague and War
Each able to undo mankind,
Death's servile emissaries are."

Contrast these straightforward utterances with the droll solemnity and prolixity of Francis Beaumont's elegy on the death of the Countess of Rutland, sister of Sir Philip Sidney. The poet actually imputes the death of this great lady to neglect of practical anatomy, better still to the fact that dead bodies for dissecting were seldom, if ever, available from the higher ranks of society:

"I will show the hidden reason, why you did not know,
The way to cure her; you believ'd her blood
Ran in such courses as you understood
By lectures; you believed her arteries
Grew as they do in your anatomies,
Forgetting that the State allows us none
But only whores and thieves to practise on.
. Had you seen
Penelope dissected or the Queen
Of Sheba then you might have found a way
To have preserved her from that fatal day."⁶

⁶Cited by Fletcher: *op. cit.*, 75.

people the sunbeam." His astronomy is mainly Ptolemaic and he favored astrology, but his remarkable knowledge of geography, botany, and zoology is evidence of his vast reading.

In "The Purple Island" (1633), Phineas Fletcher attempted an allegory of the anatomy of the human body in twelve lengthy cantos of verse.

We have travelled a long distance, indeed, from such verbose, extravagant fantasy to terse, sober reality. Yet let us not forget that such admirable poets as Thomas Lodge, Thomas Campion and Henry Vaughan, the Silurist, were practising physicians, like Sir Thomas Browne, that master of what Guy Patin called "strange and ravishing thoughts." The 17th century was an age of laboratory investigation in medical science, in which the general practice of medicine and surgery sank to a level not much better, sometimes, than that of savage tribes. Three specimens of its remorseless objective realism shed great light on the medicine of the period: Butler's *Hudibras*, Pepys' *Diary* and Defoe's *Journal of the Plague Year*, which Dr. Warren Nicholson has shown to be not fictitious, as commonly supposed, but solidly based upon the medical pamphlets and statistical records of 1665. The Plague Pamphlets of the dramatist Thomas Dekker are of unique cultural value with regard to the social aspects of this Great Plague of 1665. The Letters of Anne, Viscountess Conway, recently edited by Professor Marjorie Hope Nicholson, of Yale, afford perhaps the best sidelight we have on the degradation of medical practice in the 17th century. Even Harvey was an indifferent bedside doctor and began to lose patients after the publication of his masterpiece of 1628. Apart from Butler, the medical satirist of the period was Gideon Harvey, in his scurrilous *Conclave of Physicians* (1683). *The Artificial Changeling* (1650) of the physician John Bulwer deals with the artificial production of monsters by "reversed orthopedics" (*chirurgie au rebours*), which is the theme of Victor Hugo's *L'homme qui rit*.

In the middle of the 18th century, William Cullen, one of the leading Scottish practitioners of the period, began to lecture in English instead of Latin, and from that time on, English physicians lectured, wrote and published in the vernacular. At this time of day, it seems strange that

Morgan, Shippen, Rush and Samuel Bard, founders of medical education in the United States, should have published inaugural dissertations in Latin, along with 60 other American medical graduates of the University of Edinburgh, during 1758-88. The custom began to die out with Cullen and trailed off in the Latin salutatories and valedictories of our schoolboy days. Of the greater English physicians of the 18th century, John Hunter and Edward Jenner were mediocre writers of English. Jenner's initial tract on vaccination (1798) is notable for the poor arrangement of the material, great as is his argument. His literary manner, like that of his poems, is distinctly dull. John Hunter, one of the three greatest surgeons in history, was well-nigh inarticulate in the expression of thought. He employed such meaningless expressions as "the irritation of imperfection" or "the stimulus of death," regarded the fluid constituents of the body as sentient beings, and even wrote of "the blood's consciousness of being a useful part of the body." In plain English, he was a *primitif*, with the primitive tendency to personify the impersonal, which is never far to seek, in the light of Goethe's dictum: "Man knows not how anthropomorphic he is." Hunter and Jenner were men of action in medicine and are best judged by what they did, the experiments they performed and their outcome, rather than by anything they said in print. Hunter is best remembered by his curt, straightforward, word-of-mouth utterances, such as his advice to Jenner on the necessity of experimental accumulation of fact before formulating theories: "Don't think, try"; or on his plight as a rejected lover: "Let her go and never mind her. I shall occupy you with hedgehogs."

The best English masters of medicine in the 18th century—Lettsom, Fothergill, Young, Wells, Withering, Pott, William Hunter—were facile masters of the peculiar sober-sided literary manner of precise and formal gait, which characterized the age of periwigs, three-cornered hats, ruffles, Geneva bands, brocaded coats, small clothes, buckled shoes and gold headed canes. Of this periwigged, slightly pompous manner Cadogan whose Essay on Gout has been

edited by John Ruhrah, is the most exquisite example, while such effective and active sanitarians as Sir John Pringle, Charles White and Sir George Baker are more notable for native fire. Heberden, the greatest English bedside physician after Sydenham, wrote mainly in Latin, but his one English pamphlet, *Antitheriaka* (1745), an onslaught on the filthy and foolish ingredients of the London Pharmacopœia, is an admirable specimen of the stately, dignified, withal artificial manner of the 18th century, the age in which manner was of more consequence than matter, formality and form more highly esteemed than worth and substance. Of the poets, writers and wits who may have foregathered in Wills' Tavern, Goldsmith, Garth, Arbuthnot, Blackmore, Akenside, were medical graduates, and Smollett was a naval surgeon. Many sidelights on the medicine and sanitation of the time are afforded in the poems of Crabbe, Cowper and Pope.⁷ Slowly, but surely the medical writers of the period were approximating to that plain, pedestrian prose of unmistakable meaning, which, however dry or dull, is the essential literary vehicle of scientific research, the impersonal, factual manner of a military or official report, which Stendhal ultimately imported into the writing of fiction. Through the first half of the 19th century, this steady progression toward an effective norm of expression is perceptible in the writings of Bright, Addison, Hodgkin, Stokes, Graves, Astley Cooper and other English clinicians and surgeons down to the time of Lister and Osler. Cullen's *First Lines of Physic*, which was used even by the forty-niners of the Californian gold rush, was succeeded by the treatise on medical practice of Sir Thomas Watson, an exceedingly well-written and informing vol-

⁷Thus, Crabbe on quack medicines—

“From the poor man's pay

The nostrum takes no small amount away”;

or Cowper's reference to gout as—

“Pangs arthritic that infest the toe

Of libertine excess”;

or Pope on the insect eye:

“Why has not man a microscopic eye?

For this plain reason—man is not a fly.”

ume, which eventually gave place to the editions of Osler. In the Georgian period, wealthy or well-to-do physicians began to publish, at their own expense, very elaborate quarto volumes of travels in distant regions, of the keepsake order, often illustrated by themselves. This fashion was started apparently by Alexander Russell, half brother of the delineator of Russell's viper (See Conan Doyle's snake story), in two expensive keepsake volumes in calf on Aleppo (1794). The vogue was continued in similar volumes on Iceland by Sir Henry Holland, Italy by John Bell, Lower Hungary by Richard Bright, Morocco by Thomas Hodgkin and Constantinople by William Mac Michael, author of *The Gold Headed Cane*. About the middle of the 19th century, Sir William Wilde, father of Oscar and pioneer in the surgery of the ear, started the long procession of volumes on European travel, taken up even by such American physicians as William Gibson and Valentine Mott and of which the end is not yet. Literary and artistic diversions came to be a favored hobby of doctors in the 19th century. Very readable English translations of the Greek and Latin medical classics were made by Francis Adams, Alexander Lee, William Alexander Greenhill and Edward T. Withington. Bright, Hodgkin, the Bells, Sir Robert Carswell, Sir Richard Owen and Lord Lister illustrated their own investigations. The surgeon, Sir Seymour Hayden, was one of the most gifted and prized of modern etchers. Novels about medicine by doctors, from Samuel Warren's "Ten Thousand a Year" to Holmes, Weir Mitchell and Oliver, make a long list. Keats was an apothecary's apprentice. Thomas Lovell Beddoes heads a long row of 19th century doctor poets, such as McCrae and Ronald Ross, culminating in the laureate, Dr. Robert Bridges. The poems of two living leaders of British physiology, Henry Head and Sherrington (*The Assaying of Brabantius*) deserve a place in any anthology. One of the most charming mementoes of the association of medicine and literature is the little book of Dr. John Brown of Edinboro on Rab and Marjorie Fleming, Sir Walter Scott's little pet, who said that seven times

seven is devilish, but eight times eight more than human nature can endure. Marjorie's observations on the comparative psychology of turkeys are as fresh and piquant as when she wrote them, before her death at the age of eight:

"Three turkeys fair their last have breathed,
And now this world forever leaved;
Their father and their mother too,
They sigh and weep the same as you;
Indeed the rats their bones have crunched,
Into eternity they're launched.
A direful death indeed they had,
As wad put any parent mad.
But she was more than usual calm,
She did not give a single dam."

"We fear (she) is the abandoned mother" is Dr. Brown's running comment.

On the whole, the ablest man of letters in the medical profession was Thomas Henry Huxley, who was, indeed, the most vigorous and forceful English writer of his period, whose sentences, as John Burroughs said, are like so many javelins attaining their mark:

"Science commits suicide when it adopts a creed. Ecclesiasticism in science is only unfaithfulness to truth."

"The great tragedy of science—the slaying of a beautiful hypothesis by an ugly fact."

"The man of science has learned to believe in justification, not by faith, but by verification."

"It is better for a man to go wrong in freedom than to go right in chains."

"Better live a crossing sweeper than to die and be made to talk twaddle by a medium at a guinea a *séance*."

"Science reckons many prophets, but there is not even the promise of a Messiah."

"Books are the money of literature but the counters of science."

"Nature's discipline is not even a word and a blow, but the blow without the word."

"Thoughtfulness for others, generosity, modesty and self-respect are the qualities which make a real gentleman or lady as distinguished from the veneered article which commonly goes by the name."

Until latterly, English physicians have not tended to be so autobiographical as the German, and where they have written about their own lives, as in the case of Astley Cooper or Huxley, the record has seldom occupied more

than a page or so. On the other hand, the medical literature of England numbers several well executed and very readable biographies of physicians, among them Stephen Paget's lives of John Hunter, Victor Horsley, Sir James Paget and Ambroise Paré, Sir Michael Foster's Claude Bernard, Lonsdale's Robert Knox, Fothergill by Hingston Fox, and above all, Cushing's great two volume life of Osler. The literary tradition in English medicine culminates, in fact, in the two Regius professors of medicine at Cambridge and Oxford, Allbutt and Osler, whom Osler himself facetiously dubbed the Brothers Regii. Their literary diversions were largely confined to the history of medicine, which became a going concern in America through the pioneer efforts of Billings, Osler and Welch. In this field, Sir Clifford Allbutt was much the profounder scholar of the two, but even the professional writings of both are replete with historic allusions. In fact, a student once got up a burlesque examination paper on the very recondite cultural allusions in Osler's *Practice*, one of the most readable books on medicine ever written. Reading Allbutt for the first time is like reading Browning. You feel at times the need of a key or footnotes, to set off the erudition which the writer takes for granted in his readers. The most charming contribution of Osler is his *Alabama Student*, which has been as widely read as his *Practice* and has been a source of inspiration to us all. Allbutt's main contributions are his books on *Science and Mediaeval Thought* (1901), on the *Composition of Scientific Papers* (1904), on the *Historical Relations of Medicine and Surgery to the End of the Sixteenth Century* (1905) and on *Greek Medicine in Rome* (1921). Of his literary manner, we may say, as Johnson said of Burke, that he winds into his subject like a serpent, in fact, as one finds in reading Burke, you will not appreciate him except in very wide-awake moods. There is the same close, sinuous, intricate reasoning, sustained at a very leisurely tempo, which we find in Burke. In his book on the composition of scientific papers, Allbutt refers modestly to our "vacuous minds" and cites the dictum of Plato: "False words are

not in themselves evil, but they infect the soul with evil." Enlarging upon Sheridan's witticism that "Easy writing is damned hard reading," he says:

"It must not be supposed that mere literary form is but a toilette, a skin-deep quality. As a young student is now educated, it is hard for him to dress his matter so that it flows easily into the mind of the reader. He is apt to think that an easy style comes of letting himself go, and that a glaze can be put on by any tiresome pendant. He is unaware that an easy, limpid consecutive style is the result of consummate craftsmanship. No quality was won by more labor than for example, the ease of Montaigne; no manuscript was more anxiously revised and corrected than his. As Pope put it:

"True ease in writing comes from art not chance,
As those move easiest who have learned to dance."

In other words, Allbutt clearly recognized that what is spoken or written for the ear is seldom acceptable to the eye, and *vice versa*. The literature of antiquity, laboriously copied by scribes in periods when even a mediæval prayer book or Book of Hours cost about the equivalent of \$5,000 because it took about five years hard labor to produce it, much of this literature was written for the ear, was intended to be overheard by those who could not afford to purchase it, which is the key to our understanding of it and the reason for our many difficulties with it.⁸ On the other hand, most of us are behind spectacles today on account of the gigantic proliferation and relative cheapness of literature written for the eye.

On the many allusions to medicine in modern English literature, it will not be necessary to dwell. One is mindful of the bywords about carrying owls to Athens or coals to Newcastle. "Ever since the Crimean War," Dr. Weir Mitchell once observed, "nurses have been getting into novels," and it is no exaggeration to say that very few of our sensational murder and sex novels of today are without a doctor or something about doctoring. The tradition began with the Victorian novelists, Dickens, Thackeray, Charles Reade, Wilkie Collins, whose portrayals of dif-

⁸Segnius irritant animos demissa per aures,
Quam quae sunt oculis subjecta fidelibus" Horace.

ferent types of Victorian physicians are, all of them, surpassed by George Eliot's Lydgate in *Middlemarch*, now known to be a full length portrait of Sir Clifford Allbutt himself. Charles Reade's notes on the talent of Celtic physicians for rapid generalization in diagnosis, outstanding in such great bedside doctors as Laennec and Osler, makes his *Hard Cash* one of the greater novels about medicine, particularly in its account of the pauperization and penalization of the insane in poor-house prisons called asylums in lieu of humane medical treatment in hospital. Episodes in the history of medicine have been latterly depicted even in verse. Along with Browning's *Paracelsus*, his *Artemis Prologuizes* and Edith Wharton's *Vesalius in Zante*, comes a notable recent example in Alfred Noyes' three-volume epic on the progress of science, *The Torch Bearers* (1930). Its terminal volume deals with such major episodes as Vesalius, Harvey and Bacon, Huxley and Bishop Wilberforce, Pasteur and Renan, all circling round a surgical contretemps at sea:

"No hope unless I operate. It's a risk.
One chance in a thousand. If only we could have made
New York in time. Johns Hopkins has a man
That [*sic*] might have saved her."

In spite of this poet's predilection for trite moralizing and obligato religiosity, these profuse volumes do convey not a little of the magnitude and importance which science has latterly acquired in the world's economy, yet somehow we are mindful of the sound argument of the late Dr. W. C. Rivers:⁹

"Tolstoi said the work of the artist was to communicate emotion . . . The scientist does not remould the world after his heart's desire; he finds out how the old one is governed. His appeal is not to emotion, but intellect . . . Only the humbugs of the public platform attribute altruism to the medical discoverer, and it must have been delightful to hear Helmholtz with German candor, tell his conventional congratulators publicly that he was not moved at all by benevolence in inventing the ophthalmoscope, but by curiosity to answer questions that had occurred to him . . . The time when one misses one's scientific friends is when artists begin to talk about

⁹Rivers: *Through a Consulting Room Window*, London, 1926, 125-131.

causation; they are so sure of everything, and they run up additional wings to the edifice with so great rapidity—heedless, artist-like, as to whether they can keep up the huge establishment or not. I wonder how I bore them. They are polite people, politer than the other side, and there is little chance to know.”

Science and Faith, as Virchow said, are mutually exclusive, and no possible good can accrue to either by hashing them up together. One of the clearest thinkers on this theme was Sir William Gull, whose deep religious feeling, something private, peculiar and personal to himself, did not interfere in the least with his skill in differentiating adult myxœdema, the posterior spinal lesions of locomotor ataxia or the arterio-capillary sclerosis of Bright’s disease. Like Ben Franklin or Claude Bernard, Gull regarded scientific skepticism in the affairs of the material world as an overcoat, to be put on or off as occasion requires. He quotes St. Augustine to the effect that some things must be known in order to be believed, some things must be believed in order to be known. “The antithesis of Faith,” he says, “is inquiry,” but, “things may be opposite without being contrary,” just as the North Pole is conditioned by the existence of a South Pole. Science, as Stuart Mill observed, is not so much opposed to the spirit of poetry, as to rhetoric, oratory, cheap journalism and special pleading. Like the ancient antagonism between theologian and scientist, the real opposition is not so much science *vs.* poetry, as between the vision and mental approach of the man of science, the poet or artist and the politician. The criterion of a poetic expression of scientific fact is that the statement should be made in some unique, concise, original way, which is luminous, inevitable, impersonal and informing, without *parti pris* or *argumentum ad hominem*. In our mechanized world of today, poetry has rather lost caste as a burble incapable of expressing anything whatever. As a medium for the expression of scientific fact, no body of English verse can surpass that of the Elizabethan and Jacobean, in other words, the Tudor and Stuart periods.

F. H. GARRISON.